MBACC 101

M.B.A. Ist Semester (NEP) Examination, 2026

MOST IMPORTANT QUESTIONS 2026 – UNSOLVED MODEL PAPER

QUANTITATIVE TECHNIQUES

Paper : I

Time : 3 Hours **[M.M. : 70**

Note : Answer any **five** questions. All questions carry equal marks.

1. (a) Explain the importance of statistics in business. (b) Calculate the mean, median and mode from the following data: Marks 0–10, 10–20, 20–30, 30–40, 40–50; Number of students 5, 12, 20, 9, 4. **[7+7=14]**

2. The daily wages (₹) of workers in two factories are – Factory A: mean ₹500, SD ₹50, 100 workers; Factory B: mean ₹450, SD ₹60, 80 workers. (i) Which factory has more uniform wages? (ii) Find the combined mean and combined standard deviation. **[14]**

3. Calculate Karl Pearson's coefficient of correlation between advertisement expenditure (X) and sales (Y): X (₹ lakh): 2, 4, 6, 8, 10; Y (₹ lakh): 3, 5, 4, 7, 6. Interpret the result. **[14]**

4. From the following data, obtain the two regression equations and estimate Y when X = 12: X: 5, 7, 9, 11, 13; Y: 8, 10, 13, 15, 19. Also compute the coefficient of determination. **[14]**

5. (a) State and prove the addition theorem of probability. (b) Three machines A, B and C produce 50%, 30% and 20% of the output with 2%, 3% and 4% defectives respectively. An item chosen at random is defective. Using Bayes' theorem, find the probability that it was produced by machine A. **[7+7=14]**

6. (a) The probability that a product is defective is 0.1. Find the probability that in a sample of 5, (i) none is defective (ii) at most one is defective (binomial). (b) On average 2 customers arrive per minute at a counter. Find the probability that exactly 3 arrive in a minute (Poisson). **[7+7=14]**

7. The weights of 1,000 students are normally distributed with mean 60 kg and SD 5 kg. How many students weigh (i) more than 70 kg (ii) between 55 kg and 65 kg? (Area from mean: $z = 1 \rightarrow 0.3413$; $z = 2 \rightarrow 0.4772$) **[14]**

8. A survey of 200 customers gave the following data on preference for brands by gender – Male: Brand X 60, Brand Y 40; Female: Brand X 40, Brand Y 60. Test at 5% level of significance whether preference is independent of gender (χ^2 table value for 1 d.f. at 5% = 3.84). **[14]**

9. (a) If A = [[2, 3], [1, 4]] and B = [[1, 0], [2, 1]], find AB and the inverse of A. (b) Solve by the matrix method: $2x + 3y = 13$; $x + 4y = 14$. **[7+7=14]**

10. Write short notes on any two: (a) Quartiles and percentiles (b) Spearman's rank correlation (c) Properties of the normal curve (d) Chi-square goodness of fit test **[7+7=14]**

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